

Application No. 09/749,405
Amendment dated March __, 2005
Reply to Office Action of November 19, 2004

Atty. Docket No. 2207/7085
Assignee: Intel Corporation

REMARKS/ARGUMENTS

Claims 1-26 are pending in the application. Reconsideration in view the following remarks is respectfully requested.

Claims 24-26 are rejected under 35 U.S.C. 102(b) as being taught by Tran (U.S. Patent No. 5,822,575). Claims 1-8, 10-15, and 17-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chang, Hao, and Patt's "Alternative Implementations of Hybrid Branch Predictors" (herein referred to as Patt) in view of McFarling's "WRL Technical Note TN-36: Combining Branch Predictors" herein referred to as McFarling).

The Office Action asserts that the limitation "...[a] branch prediction apparatus, comprising:...a meta predictor to receive as inputs an index value and a branch prediction to generate a misprediction value in accordance with said inputs and said base misprediction history register output..." (e.g., as described in the embodiment of claim 1), can be found in Patt at page 252, column 2, paragraph 4; page 255, column 1, paragraph 2 to column 2, paragraph 3; and Figure 2. Applicant respectfully disagrees. Column 2, paragraph 4 of Patt discloses a selection mechanism used amongst a set of single scheme predictors. Column 1 paragraph 2 to column 2, paragraph 3 of page 255 disclose the manner in which a 2-level predictor selection scheme selects predictions by using a Branch Predictor Selection Table (BPST) to determine which predictor is most frequently correct. However, throughout these cited sections and in the Patt reference as a whole, there is no teaching suggestion or disclosure of at least a meta predictor to receive as inputs an index value and a branch prediction to generate a misprediction

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value as described in embodiments of the present inventions. Support can be found at least at page 6 line 23 of specification which states:

Misprediction value 112 then may be used to decide whether to reverse the prediction provided by the base predictor, or branch prediction 108.

The Patt reference does not contain any such reference, teaching or suggestion to the ability to reverse the prediction provided by a base predictor. Therefore, since each and every element of independent claim 1 is not taught, suggested or disclosed by the cited references, the §103(a) rejection is lacking and should be withdrawn. Independent claims 10, 17, and 20 contain substantively similar limitations and therefore should be allowed as well. Claims 2-8, 11-16, 18-19 and 21-23 depend from the aforementioned allowable independent claims, and therefore are in condition for allowance as well.

In addition and in the alternative, Applicants respectfully submit that there is no suggestion or motivation to combine Patt and McFarling beyond the impermissible use of hindsight. Applicants submit that a *prima facie* case of obviousness has not been made. The MPEP requires that the references must suggest making the combinations. MPEP §2141.01 (citing *Hodosh v. Block Drug Co., Inc.*); §706.02(j) (the initial burden is on the examiner to provide a convincing line of reasoning with explicit or implicit suggestions to combine references).

Merely stating that it would have been obvious for a person of ordinary skill in the art to combine references, without pointing to a specific hint or suggestion to combine, has been rejected by the Federal Circuit, as an invalid basis of rejection under 35 U.S.C. §103. *In re Lee*, 277 F.3d 1338, 1343 (Fed. Cir. 2002) (the court held that rejecting a conclusory statement that it would have been obvious to combine the references without evidence of a teaching, motivation,

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or suggestion to select and combine the references, citing numerous case); *In re Dembiczak*, 175 F.3d 994,999 (Fed. Cir. 1999) ("Our case law makes clear that the best defense against the subtle but powerful attraction of a hindsight-based obviousness analysis is rigorous application of the requirement for a showing of the teaching or motivation to combine prior art references.") In this case, the Office Action takes the alleged disclosure of Patt, a meta predictor to receive as inputs an index value and a branch prediction to generate a misprediction value in accordance with said inputs and combines it with the alleged based misprediction history register allegedly taught in McFarling. However, in addition to the arguments made above, there is no teaching, suggestion or motivation to combine to be found in the references that adequately form the basis of a proper 35 U.S.C. §103(a) rejection of independent claim 1. Independent claims 10, 17, and 20 contain substantively similar limitations and therefore should be allowed as well. Claims 2-8, 11-16, 18-19 and 21-23 depend from the aforementioned allowable independent claims, and therefore are in condition for allowance as well.

The Office Action alleges that Tran has taught restoring a base misprediction history register at column 14 lines 14 to column 15, line 7; column 18, lines 44-62; column 19, lines 31-49; Figure 3; and Figure 4). Applicants respectfully submit that there is no teaching suggestion or disclosure of a "base misprediction history register" as disclosed in the embodiment of claim 24 in the extensive citation of Tran. Support for this limitation can be found, among other places, at page 6 line 16 of the specification, which states:

As discussed above, base misprediction history register 110 reflects the correctness of the base predictor standing alone. Unlike global history registers that record whether previous branches were taken or not taken, base misprediction history register 110 records whether previous branch predictions were correctly predicted by the base predictor.

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Applicants respectfully submit that a teaching suggestion of a base misprediction history register as described in embodiments of the present invention is not to be found in any of the cited sections of Tran. Therefore, since each and every element of independent claim 1 is not taught, suggested or disclosed by the cited reference, the §102(b) rejection is lacking and should be withdrawn. Claims 24-26 depend from the aforementioned allowable independent claims, and therefore are in condition for allowance as well.

In view of the above, Applicants believe that all claims remaining in this application are in condition for allowance, prompt notice of which is respectfully solicited. The Examiner is invited to call the undersigned at (408) 975-7950 to discuss any information concerning this application. The Office is hereby authorized to charge any additional fees under 37 C.F.R. § 1.16 or § 1.17 or credit any overpayment to Deposit Account No. 11-0600.

Respectfully submitted,

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By


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